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## PREFACE

This document is an abstract of the original in order to present it on the internet. Tables and charts which are contained in the original report have been removed. Persons interested in specific charts or tables may contact the Division of Special Education for copies. The entire document is viewable by contacting the Division of Special Education. This Study was conducted to meet the December 2001 requirement.

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## INTRODUCTION

Few national studies that have focused on the literacy of students with visual impairments (SVI) in K-12 schools. Since 1997, Missouri, in accordance with state law, has been conducting statewide literacy studies of SVI. These collective studies have provided



meaningful data that have been used to make important policy decisions concerning the provision of services for this population. The Missouri studies have provided a framework and a model for other states that have similar mandates to investigate the level of Braille literacy amongst SVI who meet the legal definition of blindness.

Craig (1996) conducted a national study on the role of families in the emerging literacy of SVI. The study found that parents of prospective Braille readers had different expectations concerning their children's ability to read and write and reported fewer home literacy experiences such as pretend reading, examining tactual books, and scribbling when compared to prospective print readers. The study also found that families of SVI with additional disabilities ranked learning to read and write lower than other goals such as communicating effectively, making friends, and self-care skills.

Ryles (1996) conducted a study of how use of various literacy media impacts post-secondary outcomes. Results indicated that SVI who learned to read using Braille had higher employment rates and educational levels, were more financially self-sufficient, and spent more time reading than those who learned to read using print.

As indicated, the collection of Missouri studies provides the best indicators of how SVI in Missouri compare with other states. The 1997 census survey results were collected from the APH Registry. These data indicate that 84 percent of the students registered who were Braille readers were at grade level and utilized textbooks at their grade level, (or no more than one grade level below). The remaining 16 percent of students were not more than two grade levels below their grade level.

In response to House Bill 1088, the Missouri School for the Blind (MSB) conducted the 1998 Census of Blind and Partially Sighted School-Age Children in Missouri. The instrument used in that study was streamlined from the instrument used to conduct the Annual APH Federal Quota registration in Missouri but included additional survey items to collect data on the achievement by grade level in the area of literacy. A total of 668 survey questionnaires were returned from 87 school districts in the 1998 census. Interpretation of these data collected and reported in the 1998 Census indicated that of the 234 students classified as legally blind, 95 (41%) were reading at grade level and 21 (9%) were functioning above grade level in the area of reading achievement.

For the 1999 Blindness Literacy Study, 145 Missouri school districts and 2 centers [Children's Center for the Visually Impaired (CCVI), Delta Gamma of St. Louis] serving (SVI) completed literacy profiles on students' ages birth to 21. A total of 672 literacy profiles developed based on instrumentation used at the Texas School for the Blind (TSB) were included in the analysis.

An analysis of the data collected from the student profiles revealed that 77% of all SVI who were identified as either print readers, Braille readers, or print and Braille readers were reported to be reading at or above grade level. Of the 97 profiles of Braille readers providing complete data on grade placement and achievement in reading, 58 (60%) were reported to be functioning at or above grade level. Of the 127 students who were reported as Braille readers, 57 (45%) were reported to perform grade level activities interpreting charts, graphs, and maps. A total of 73 Braille readers were reported to have no additional disabilities. Of these, 54 (74%) were functioning at or above grade level.

Among the 324 students reported to be print readers (large print and regular print), 188 (58%) were reported to be reading at or above grade level. No statistically significant differences were found in the grade level reading performance of SVI who use print, Braille, or print and Braille.

Higher estimated Braille reading rates were evidenced among students in grades 4-6.

Moreover, data from the 1999 study indicated increased use of auditory sources such as tapes and text to speech systems among middle school and high school SVI.

The findings of the 1999 Blindness Literacy Study, mandated by Section 162.1136, RS Mo suggest the need to focus on the academic literacy needs of all SVI, not just those who are legally blind. Available data on Missouri Assessment Program (MAP) scores indicated that students who are partially sighted using print media scored lower than the average for all students without disabilities.

These findings reflect a national discussion or concern related to the academic performance of SVI with low vision (Holbrook & Koenig, 1992; Ryles, 1996). Finally, the 1999 study recommended that future studies should rely upon more direct assessment of the reading achievement of SVI. This approach would provide more accurate data on the status of literacy among this population in Missouri.

The 2000 Blindness Literacy study had a different focus, and relied heavily on the data obtained from DESE, APH, and information provided by Rehabilitation Services for the Blind (RSB). The study reported a total of 324 clients receiving transition services. The study also reported there were between 84 and 101 certified teachers of the blind and visually impaired employed in Missouri's public schools. Much of the data reported in the 2000 report are included in the results of the present study, which provides information based on DESE core data and the APH registry from the past three years.

## **METHODS**

This study was limited to those students with visual impairments (SVI), ages five to twenty-one, who are classified as blind (20/200 acuity in the better eye with correction). The data sources outlined in this section have been reviewed by an out of state external reviewer nationally known in the field of educating SVI. In addition, colleagues from around Missouri have played an important role in reviewing the instrumentation developed for the 2001 study. When possible, data were collected from the four most recent school years 1997-98, 1998-99, 1999-2000, and 2000-2001.

### **IDEA (Individuals with Disabilities Education Act)**

Data were collected from the Missouri Department of Elementary and Secondary Education (MODESE) Individuals with Disabilities Education Act regarding those students ages 5 to 21 who are classified as blind (with 20/200 in best eye with correction) and in Missouri schools by school placement category for the 1997-98, 1998-99, 1999-2000, and 2000-2001 school years.

### **APH (American Printing House for the Blind)**

Data collected from APH included SVI ages five to twenty-one by grade placement, primary reading medium and additional reading medium for the 1997-98, 1998-99, 1999-2000, and 2000-2001 school years.

### **Teacher Survey Questionnaire**

A survey instrument to gather data on the level of literacy instruction, use of assertive technology, and teacher preparation for work with SVI was developed based on a data collection system used at the Texas School for the Blind (TSB) to develop literacy profiles on SVI in that state (See Appendix A.) These survey instruments were mailed to 359 educators across Missouri in April 2001. The intent of this large sample was to ensure that data would be collected from all educators currently providing services to SVI. The mailing was compiled from a list provided by MODESE of Visually Impaired certified teachers and

the APH registry administered by personnel at the Missouri School for the Blind (MSB) of teachers and/or districts currently providing services for students who are blind in public and private schools. A second mailing and follow-up phone calls were made in May 2001 to those not responding to the initial mailing. As a result 110 surveys were returned with 23 of those determined unusable due to late arrival or incomplete information. Thus, there were 87 returned usable surveys. According to MODESE data there are 96 VI certified teachers currently serving SVI in Missouri. Forty-six of those responding were VI certified, this gives a 47.9% response rate among VI certified teachers.

### **MAP (Missouri Assessment Program)**

MODESE provided MAP scores for mathematics, science, social studies and communication arts for the 1997-98, 1998-99, 1999-2000, and 2000-2001 school years for SVI and all students in Missouri. Also included were those students receiving alternative test formats, with data reported on accommodations provided during the time periods as well.

### **Direct Assessments**

Based on recommendations made by SMS researchers in the 1999 Missouri Blindness Literacy Study, the present study includes data collected through direct assessment of SVI using the Johnson Basic Reading Inventory adapted for Braille readers. An initial orientation and training opportunity for teachers participating in the study was provided at the SMS campus by Dr. Cay Holbrook, a nationally known educator of SVI and an expert on conducting learning media assessments (LMA). SVI selected for direct assessment represent various geographic regions of the state defined by service area of the Regional Professional Development Centers (RPDC). Each assessment was conducted by a certified teacher of SVI including data provided by personnel at MSB. Data from the direct assessment have been organized to illustrate Braille reading rates, graded word lists and comprehension.

### **Post-Secondary Questionnaire**

Survey questionnaires were mailed from Rehabilitation Services of the Blind (RSB) to 113 post-secondary students in June 2001. Twenty-five usable surveys were returned which resulted in a 22% return rate. The survey used for this component of the study was developed based on a focus group discussion hosted by the Springfield RSB Regional Office.

## **FINDINGS**

### **IDEA Findings**

Tables 1 - 4 show the number of students, ages five to twenty-one, classified as blind in Missouri schools as reported by MODESE (Missouri Department of Elementary and Secondary) IDEA (Individuals with Disabilities Education Act) for the 2000-2001, 1999-2000, 1998-1999 and 1997-1998 school years by age and school placement category {i.e. class within a class, regular class with curriculum modifications, parallel curriculum, resource, self-contained, homebound/hospital, residential/private, private/public school, state operated school Missouri School for the Blind (MSB)}.

As Table 1 indicates during the 2000-2001 school year the total number of SVI were 245 with 110 of those attending MSB, constituting more than 44% of the students. The remaining 135 students are accounted for in the other eight school placement categories, with 94.8% of those placed in regular class with curriculum modifications (n=70), resource (n=40) and self-contained (n=18).

Table 2 displays the total number of students (n=229) for the 1999-2000 school year with

76 of those attending MSB, 33% of the students. The remaining 153 students are accounted for in the other eight school placement categories, with 93.5% of those placed in regular class with curriculum modifications (n=84), resource (n=44) and self-contained (n=15).

The total number of SVI, 261, for the 1998-1999 school year is shown in Table 3. Students attending MSB represent 42.9% of the total (n=112). The remaining 149 students are accounted for in the other eight school placement categories, with 93.3% of those placed in regular class with curriculum modifications (n=67), resource (n=38) and self-contained (n=34).

Table 4 shows the total number of students (n=242) for the 1997-1998 school year. MSB is reported having 108 of those students, 44.6% of the total. The remaining 134 students are accounted for in the other eight school placement categories, with 94.0% of those placed in resource (n=58), regular class with curriculum modifications (n=44) and self-contained (n=24). Consistently over the four-year period the three school placements containing the majority of students were regular class with curriculum modifications, resource and self-contained. These placement categories have a combined average of 134 students, 93.9% of those not attending MSB. The accompanying Figures 1 – 4 display the number of students by age, five to twenty-one, for each of the four years.

As Table 5 and Figure 5 display, the average number of students over the four-year period is 249 with 41.8% attending MSB on average. Table 6 shows data and Figure 6 displays a four-year comparison of school placements with, the highest placements being regular class with curriculum modifications, resource, and self-contained, with averages of 27.1%, 18.4%, and 9.3% of the total students, respectively, over the four-year period.

### **APH Findings**

APH (American Printing House for the Blind) data are displayed in Tables 7a– 11 for students classified as blind by age (five to twenty-one), grade placement and primary reading medium (the medium used for the majority of reading tasks) for the 2000-2001 (n=731), 1999-2000 (n=733), 1998-1999 (n=740) and 1997-1998 (n=749) school years. Each year has shown a slight increase from the previous year with a total increase of 2.5% over the four-year period.

As shown in Tables 7a-10a the majority of SVI in each of the four years reported are in grade placements pre-school to twelfth grade (n= 438, 59.4% average.) The highest number of SVI in a single grade placement category is that of other registrants (i.e., students of school age, as determined by state law, who do not fall into any of the other placements). Each of the four reporting years indicate that over a third of the total students are other registrants (35.5% average.) The ages of the reported SVI are fairly evenly distributed from age 5 to age 21, with the fewest students' being 18, 19, and 20 years of age consistently each year.

When comparing primary reading medium (PRM) categories over the four-year period the three highest categories consistently are non-reader, visual and Braille, with the average percent of SVI as 36.7%, 33.6% and 14.9% respectively. The PRM category non-reader is the most populated category with over one third of the total SVI each year being placed. Table and Figure 11 display these comparisons.

Of those placed in the non-reader category the vast majority are other registrants (83.6% average.) Consequently, the vast majority (87.7% average) of other registrants are categorized as non-readers. The percent of other registrants that are non-readers has increased steadily each year over the four year period, resulting in a 10.4% increase overall.

Table 12 illustrates how Missouri SVI in grades K-12 compares to other states in terms of primary reading media based on data provided by APH, for the state and nation as of January 2000. These data indicate Missouri accounts for 410 (2.0%) of the total 20,828 students classified as blind across the nation. Of these 410 Missouri students, 23.9% have Braille as their primary reading medium compared to the national average of 18.5%.

Data concerning a four-year comparison of the number of students classified as blind by Missouri school districts serving more than 25 SVI and all other Missouri schools districts is displayed in Table 13. According to APH data there has been a 2.4% decrease in the number of SVI served state-wide from 1998 to 2001. These same data (reported by APH) reflect that the Missouri School for the Blind's population has increased 26.8% and the Special School District has increased 7.6% total SVI served over the last four years.

### **Findings of Teacher Survey**

A survey instrument to gather data on the level of literacy instruction, use of assistive technology, and teacher preparation for work with SVI was developed based on a data collection system used at the Texas School for the Blind (TSB) to develop literacy profiles on SVI in that state. These survey instruments were mailed to 359 educators across Missouri in April 2001. The intent of this large sample was to ensure that data would be collected from all educators currently providing services to SVI. The mailing was compiled from a list provided by MODESE of Visually Impaired certified teachers and the APH registry administered by personnel at the Missouri School for the Blind (MSB) of teachers and/or districts currently providing services for students who are blind in public and private schools. A second mailing and follow-up phone calls were made in May 2001 to those not responding to the initial mailing. As a result 110 surveys were returned with 23 of those determined unusable due to late arrival or incomplete information. Thus, there were 87 returned usable surveys representing a total of 75 Missouri school districts (See Appendix B). According to MODESE data there are 96 VI certified teachers currently serving SVI in Missouri. Forty-six of those responding were VI certified, this gives a 47.9% response rate among VI certified teachers. This response rate is shown in Table 14.

### **Respondent Demographics**

As depicted in Table 15 the majority of certified personnel in the area of Blind and Partially Sighted (41.3%) are working in comprehensive K-12 settings in Missouri's schools. A review of Table 16 reveals that among those VI certified teachers the mean years of teaching experiences has been computed to be 22.6. Only 2 of the 46 (4.3%) VI certified respondents fell within the 0-5 years of teaching experience. Given recent data that indicate high attrition among new teachers and the projected retirements within the next five years, these findings suggest a need to focus on the preparation of new teachers to work with SVI in the state of Missouri (Missouri Teacher Supply and Demand, 2001) and (Gersten, et. al., 2001).

A review of Table 17 reveals that a large percentage of VI certified and non-VI certified teachers (51.8 %) have been in their current position for less than five years. Only 6% of total number of respondents working with SVI have been in their current position for over 21 years. In comparison over 75% of the total respondents reported that they have been in their current position for 10 years or less. These findings support the need for mentoring to facilitate long-term teaching assignments with SVI. Moreover, the DESE tuition fee waiver system for pre-service training in VI may need to be extended to include on-going professional development. (See Appendix C for information on teacher preparation of respondents).

As reflected in Table 18, out of the 402 SVI served by the teacher respondents in Missouri, 240 (59.7%) were reported as having multiple disabilities. This finding is consistent with

data from APH and other sources that indicate a changing trend of SVI to include more children with multiple disabilities. Student data from APH and MSB were unavailable to permit a more detailed analysis of additional/multiple disabilities of SVI (See General Conclusions and Recommendations).

#### Assistive Technology Usage

The frequency or extent to which students use assistive technologies was defined in the teacher survey as follows: Never – Available but not used; Rare – used at least once one day per week; Occasional – used at least once each day 2-3 days per week; Frequent – used at least once each day 3-5 days per week and Always – used consistently (on a daily basis) throughout the week. These findings are displayed in Tables & Figures 19a-19g. Appendix D contains respondent data concerning assistive technology availability, need and perceived impact on student achievement.

#### Instructional Setting

A review of the findings associated with assistive technology use within an instructional setting (Table 19a) suggests a relatively low use of the abacus with 44.1% of those responding indicating that students never use this technology. In contrast, the Braille writer was the device that 49 of the 68 respondents (72.1%) indicated usage level as frequent and/or always, with over 50% using it always. Of measuring devices, toys/appliances and timepieces, the technology with the least usage was the measuring devices with almost 59% indicating the student usage as rare or never. However, toys/appliances and timepieces had 44% and 49.1%, respectively, of the respondents using these technologies frequent or always. When studying those technologies that are non-optical, the two which were indicated as being used the most were special paper and regular print materials with the usage as frequent or always from 60.5% and 56.5% of the respondents, respectively. The auditory sources technologies showed a high usage among SVI with over 60% of respondents using each of the taped materials and tape recorder/player frequent or always.

#### Cognition and Communication Devices

In Table 19b, 78.9% of respondents never use audiological equipment in the cognition and communication devices.

#### Occupational and Physical Therapy Devices

Table 19c represented assistive technology usage regarding occupational and physical therapy devices. In this table, the majority of all respondents of this section (n=49) indicated the usage level of each technology as never or always.

#### Orientation Mobility Devices

In Table 19d, while 88.2% of the respondents indicated electronic devices were never used, almost 60% used a cane as an orientation mobility device always. The usage of maps was dispersed evenly between rare, occasional and frequent usage (21.4%, 23.2% and 21.4% respectively) with 28.6% never using them.

#### Low Vision and Optical Devices

In the area of low vision needs a review of Table 19e reveals that a third of the respondents indicated that closed circuit television (CCTV) was never used. Almost half of respondents (47.2%) indicated magnifier usage frequent or always. In contrast, the usage of the microscope and monocular telescope were never for 72.5% and 45.5% respectively.

#### Hardware & Software Devices

In Table 19f, where respondents indicated 23.1% on alternative portable note taker (APN), only 3.7% show slate and stylus as being used always. As expected, Table 19g, displays the majority of respondents (54.7%) frequently or always use speech software devices. In contrast, refreshable Braille display was listed as never used by 68.2% of the respondents. Figures 19a-19g display the means of the level of usage for each of the categories pictorially.

#### Assistive Technology and Learning Media Assessments

Additional survey items (Table 20) pertaining to assistive technology indicated that the majority of respondents reported that assistive technology assessments were conducted (81.2%), materials were recommended for use (85.5%), and materials were provided after the assessment (93.2%).

With respect to those SVI who have received a comprehensive learning media assessment (LMA) 29 respondents indicated that 91 of the students they serve received an LMA (See Table 21.) This is less than 23% of the total students (n=402) served by the total respondents (n=87.)

#### Students' Primary Reading Medium

Tables 22a-22e display the portion of the teacher survey where respondents were asked to indicate the number of students using a particular primary reading medium (PRM) and their overall ability to complete reading tasks. While only 3% of the students who use Braille as their PRM (n=105) were said to be able to complete reading activities above grade level, 69.3% are able to answer comprehension questions about a story read aloud either on or above grade level. In contrast 54.1% of those students were indicated as performing below grade level in interpreting charts, graphs and maps. Data from respondents indicate that students using large print as their PRM (n=125) are performing overall at a higher level than those using Braille, with average of 79.3% performing on or above grade level. This is more than 22% above the average percent of those Braille readers performing on or above grade level (57.2%).

#### Level of Braille Instruction

Table 23 reveals that almost all of the respondents deliver Braille instruction to their students 1-3 days per week (46.4%) or daily (49.2%). Those VI certified respondents delivering instruction 1-3 days per week use sessions more than ½ hour in length with 37.5% using ½ hour to 1-hour sessions and 43.8% using 1-2 hour sessions. Similarly, the daily Braille instruction model indicated as being used by 51.4% of VI certified respondents occur mostly in sessions of more than ½ hour in length. Sessions that are 1-2 hours in length are used daily by 55.6% and ½ hour to 1-hour session are used daily by 38.9% of VI certified respondents, respectively.

#### MAP Data Findings

Missouri Assessment Program (MAP) achievement data for communication arts, mathematics, science and social studies are displayed in Tables 24a-c, 25a-c, 26a-c and 27a-c for the 1997-1998, 1998-1999, 1999-2000 and 2000-2001 school years. These data are disaggregated by SVI and all Missouri students (SVI included). Due to volunteer test administration during the 1997-98 and 1998-1999 school years data reflecting some subject area assessments were not available for SVI.

In the reporting year 2000-2001, 39 SVI were reported to have completed the communication arts MAP assessment, which include: 12 third graders, 14 seventh graders and 13 eleventh graders. The majority of SVI for each grade level reported were noted to be at the "nearing proficient" level (third grade=50.0%, seventh grade=42.9% and



eleventh grade=46.2%). However, almost one third of third grade SVI (31.7%) scored at either the “step1” or “progressing” level, compared to 28.5% of seventh grade SVI and 46.2% of eleventh grade SVI scoring at the same levels.

Mathematics MAP achievement levels are fairly consistent for each grade level across all four reporting years. Of the 57 fourth grade SVI reported as completing the mathematics MAP assessment over the four-year period, 50.0% or more scored at the “nearing proficient” or “proficient” level for each of the four years (1998, 1999, 2000 and 2001). However, the achievement level of the majority of SVI in seventh grade and tenth grade in the area of mathematics is considerably lower for each of the four years. These percentages range from 71.4% to 100% of SVI scored at “step 1” or “progressing” for each year. Data indicate no tenth grade SVI scored at the “advanced” or “proficient” level during any of four years reported. (Note: The only discrepancy of this comparison is in the 1997-1998 reporting year. Of the 3 seventh grade students, 66.7% were “nearing proficient”).

Similar to the achievement levels in mathematics, the achievement levels of those SVI completing the MAP science assessment in elementary tend to be higher, overall, than those middle school or high school SVI. The majority of third grade SVI scored at the “nearing proficient” or “proficient” level for each of the years reported (1998-1999, 58.4%; 1999-2000, 60.0% and 2000-2001 54.6% combined). Again, middle school and high school achievement levels are overall much lower than elementary scores, with the percent of middle school and high school SVI scoring at “step 1” or “progressing”, ranging from 55.5% to 93.3%. Data once again indicate no tenth grade SVI scored at the “advanced” or “proficient” level during any of four years reported.

Achievement levels of SVI completing the social studies MAP assessment in fourth grade indicate the majority of SVI scored at the “nearing proficient” level for each year reported (1998-1999, 50.0%; 1999-2000, 44.4%; 2000-2001, 44.4%). During the 2000-2001 school year, almost one third of fourth grade SVI scored at the “advanced” (14.8%) or the “proficient” (14.8%) level. During this same time (2000-2001) 50.0% of seventh grade SVI and 29.4% of eleventh grade SVI were reported to have scored at the “step 1” level. Data for these two grade levels are also reported for the 1998-1999 and 1999-2000 school years.

#### Map Accommodations

Data from MODESE indicate that the number of testing accommodations for SVI has increased over 300 percent, with 137 total accommodations during the 1997-1998 reporting year increasing to 549 total accommodations in the 2000-2001 reporting year.

Braille edition, large print edition and oral reading are the categories indicated as utilized for almost all administration accommodations. These three categories combined represent more than 90% of the administration accommodations each year 1998 (97.3%), 1999 (96.4%), 2000 (94.9%) and 2001 (96.7%). Braille is the administration accommodation used the most often for all reporting years except 2001, in which oral reading is the accommodation most used.

Dictation to a scribe and a Brailier are indicated to be the most used response accommodation categories. The Brailier was indicated as being used the most for each of the reporting years except 1998 (1997, 8.3%; 1998, 30.3%; 1999, 50.0%; 2000, 43.8%; and 2001 35.9%).

Small group setting accommodations were used more than individual setting accommodations each of the reporting years, except 1998.

When comparing the data for timing accommodations each of the reporting years, except

1999, extended time was indicated more frequently than the use of more than three testing periods.

These data are also disaggregated by MAP assessment subject area for each of the reporting years available in Tables 28 b, c, and d.

### **Direct Assessment Findings**

As reflected in Table 29, the average Braille reading rates obtained through direct assessment of SVI reveal in the age category of 7-10, an average Braille reading rate of 20.67 words per minute at the silent-independent reading level. In the age category of 11-15, marked improvement is shown with an increase average Braille Reading rate of 63.00 words per minute at the silent/independent level. Finally, in the 16+ category, the average Braille reading rates for silent/independent caps at 74.00 words per minute. Note, that the average Braille reading rates among adults have been reported to be 100 words per minute (Mangold 1982).

Table 30 reveals the average grade performance of SVI on the direct assessment measures pertaining to grade level, as measured specifically by word recognition lists in Braille. At the independent levels, the SVI falling within the age category of 7-10 were determined to be reading, on average, at the primer level. The next age category, 11-15, showed an average grade level performance level of 4.70. Finally, at the 16+ age level, SVI were determined to be reading, on average, at the 10.5 grade level.

The direct assessment also addressed Braille reading comprehension. Within the 7-10 age category, the average grade level performance in comprehension was determined to be 1.5. Within the 11-15 age group, the comprehension level was computed to be 4.44. Finally, in the 16+ age category, the average grade level performance showed a marked increase of 9.00.

While Tables 29-31 reveal additional data on Braille reading rates, grade level performance and comprehension, only the variables of silent-independent have been reported in the narrative. The SMS researchers believe this is the most accurate data to be compared over time.

### **MSB Direct Assessment Data**

The data reported on direct assessment were formatted differently, and were not included in the general sample of SVI selected from local education agencies (LEA). The assessments were conducted by the Braille teacher at MSB. A summary of the performance related to the five MSB students follows.

Three of the five students were determined to be reading at grade level as measured by graded word list. With respect to silent reading comprehension, all five students have grade levels determined, showing two students reading at grade level in the 7th grade, and the older students reading below in the area of silent-comprehension. Note: MSB did not report Braille Reading Rates for the five students submitted for inclusion in the analysis.

### **Graduation and Post-Secondary Findings**

Data in Table 32 display a consistent decline (83.0% decrease) regarding number of referrals to Rehabilitation Services for the Blind (RSB) over the past three years (1999-2001). The data provided by RSB regarding their clientele cannot be used to determine a direct correlation between the number of referrals and those transition services provided to those same clients.

Tables 33a-d the display data regarding exit reasons of SVI for the 2000-2001 academic year and the three previous years. These data indicate that for all reporting years, except

1997-1998, that more than three-fourths of SVI exit high school either to graduate or they move and are known to continue school elsewhere (1997-1998=38.5%; 1998-1999=76.9%, 1999-2000=96.4% and 2000-2001=82.1%).

Graduations rates for the 2000-2001 academic year and three prior years are shown in Table 34. These data compare the graduation rates of all Missouri students to SVI (Note: Graduation rates of SVI for the 2000-2001 academic year were unavailable at the time of completion of this report.) Overall, there has been a significant increase in the percent in graduation rates over the last four years for SVI. While only 27% were reported to have graduated in 1998, the graduation rate for 2000 is 94.74%.

#### Post-Secondary Survey

Survey questionnaires were mailed from RSB to 113 post-secondary students in June 2001. Twenty-five usable surveys were returned which resulted in a 22% return rate (See Appendix E). The survey used for this component of the study was developed based on a focus group discussion hosted by the Springfield RSB Regional Office (See Appendix F for focus group protocol). Of those 25 respondents 21 have graduated high school. Eighty-four percent of the total respondents have attended Missouri public schools (age range of 17 to 21) (see Table 35).

The following data were derived from Table 37. A majority of respondents indicated (by choosing strongly disagree or disagree) that in areas of mathematics (33.3%) and science (29.2%) they were not provided materials in usable format. However, on the MAP, respondents believed they were provided appropriate testing materials by choosing agree or strongly agree) in mathematics (83.3%) and science (86.6%). Thus some respondents indicated they are not provided with appropriate materials on a regular basis, but are given MAP material in an appropriate format.

Table 37 displays the number of respondents, which agreed that they were evaluated equivalent to their peers (79.1%; agree and strongly agree combined). Focus group discussions suggested that some SVI believed their grade were inflated in specific educational contexts. In addition clients indicated that their high school experience and services from RSB adequately prepared them for post-secondary education, with 73.9% and 66.7% indicating they agreed or strongly agreed, respectively. Clearly, the majority of respondents (71.4%; agree and strongly agree combined) indicated that their high school experience and RSB worked together to meet post-secondary goals. In general while respondents believe they were adequately prepared for post-secondary education they did perceive that their preparation was not adequate to obtaining employment (45.8% disagreed or strongly disagreed and 20.8% had no opinion). The employment opportunities for respondents were perceived as low. Forty-three percent of respondents disagreed or strongly disagreed that employment opportunities were readily available, with 26.1% having no opinion.

Table 38 indicates that 13 respondents are currently or plan to be involved in a four-year post-secondary education program, four respondents have not enrolled and have no plans to enroll in a similar program. Three respondents are currently enrolled in a two-year post-secondary education program, five respondents are currently participating or plan to participate in a vocational training program or another form of rehabilitation program. The majority of clients (58.3%) indicated they did not engage in part-time employment during high school. This finding is important given the research which indicates that the best predictor for future success in employment hinges on the extent of part-time employment opportunities provided to students prior to graduation of high school (Sacks, 1998). Consistent with national data on the employment of individuals who are legally blind, 62.5% indicate they are currently not employed, with only 16.6% working 30 or more hours per week.

Table 39 displays the current employment status for clients of RSB. Of the 25 respondents completing this portion of the survey, two individuals who have completed high school are now employed full time. Table 40 indicates that on average 42% of respondents participated in some type of part-time employment prior to high school graduation.

Table 41 indicates post-secondary survey respondents' perceptions regarding the level of functional usage of skills obtained through their K-12 program and other supporting programs. Overall, the skills rated highest by respondents are in the areas of orientation and mobility.

## **RECOMMENDATIONS**

The following recommendations have been made based on the experience of the SMS researchers who have conducted two of the annual state-wide studies on the literacy and vocational needs of children and youth who are blind. The recommendations have been categorized into five sections, which align with the main headings in the executive summary and which reflect a careful analysis of all relevant data included in the full report.

### Missouri Assessment Program (MAP)

- ▶ A need to continue appropriate math instruction to SVI using alternative media as student progress through middle school and high school.
- ▶ Math instruction for SVI should include selective use of traditional assistive technologies such as the abacus for the teaching of basic calculations.
- ▶ Sample items from the MAP, in alternative formats, must be provided in sufficient quantity and in variety, to prepare SVI for the MAP. Multi data sources included in the study suggest that SVI performed below grade level in the use of maps, charts, and graphs. SVI must be provided alternative formats comparable to what is provided on the MAP in their day-to-day instruction in the areas of math and science.

### Quality and Accessibility of Instruction

- ▶ There must be adequate funding for professional development of veteran teachers holding Missouri certification in the area of blind and partially sighted. This recommendation is made based on data which show that the majority of teachers currently with SVI have over 20 years of experience. Advances made, even within the past two years, in the education of SVI have been significant. Practicing teachers of SVI must be provided with re-tooling in the area of assistive technology.
- ▶ Teachers completing an add-on endorsement in blind and partially sighted must be provided adequate mentoring appropriately facilitated by a regional Blindness Skills Specialist (BSS) or a professional with comparable credentials and expertise. For all beginning teachers, no less than three years of mentoring and follow-up is being provided by Institutions of Higher Education. If SMS and UMSL are to continue a role in this training process, support from DESE must be provided to develop a statewide mentoring plan to compliment the training initiatives currently underway.
- ▶ Support from DESE is necessary to fund a technology infrastructure to offer statewide training through distance learning. Presently, there is a plan to connect personnel at MSB with faculty at SMS to provide more comprehensive training, which leads to certification in Blind and Partially Sighted. Funding for site-based facilitators will be needed to insure a quality distance learning training program.
- ▶ The Blindness Skills Specialist (BSS) Program must be fully funded in order to meet the unique educational needs of SVI within a regional model for service delivery. This

model will draw upon multiple state, regional, and community resources, including the Out-Reach Department and other programs and personnel at MSB to meet this objective.

- ▶ Both professional development and pre-service training must include the use of the learning media assessment (LMA) and appropriate Braille assessments. Teachers of SVI, in Missouri, must employ these best practices for assessment to insure quality programming for SVI and opportunities to become fully literate in the appropriate reading medium.

#### Assistive Technology

- ▶ Pre-service/in-service teachers of SVI must receive intensive training in the use of assistive devices and software routinely used by individuals who are blind.
- ▶ BSS programs must be funded to include low vision devices and other materials to be used as part of professional development related to the clinical low vision evaluation. These evaluations must become an integral part of the school based assessment plan for SVI.
- ▶ DESE must continue to provide funding for districts to acquire assistive technology recommended as part of formal and informal assessments. DESE must also continue to be responsive to instances where assistive technology has not been provided to SVI pursuant to the IEP.
- ▶ DESE should facilitate discussions centered on the feasibility of establishing an assistive technology support professional or structure within the BSS regional program. The BSS regional system should interface with the Equipment Technology Consortium (ETC) administered through the Missouri Assistive Technology Project (MATP) to provide a fuller array of assistive technology services to SVI.

#### Vocational

- ▶ School counselors and other personnel should be included in professional development centering on the importance of part-time employment of SVI prior to graduation. In addition, these professionals should be aware of the full array of post-secondary opportunities afforded to SVI to meet vocational goals.

#### Accounting for Number Disparities among SVI in Missouri

- ▶ Future studies should attempt to obtain a more accurate account of SVI in Missouri on an annual basis. The data sources specified by the RFP consistently yield disparities with the number of SVI receiving material from APH and those accounted for by the December 1 child count. As stated earlier, one fundamental rationale for full funding of the nine BSS positions in the state is that there has been a gross underidentification of SVI. This was clearly demonstrated during the Springfield demonstration project where over 40 additional SVI were identified beyond the IDEA child count for the contract year. These nine projects must become an integral component of the annual study and future RFPs should reflect the role of the BSS programs.
- ▶ The task force should consider the merit of an RFP, which mandates comparison of SVI with the general school populations, using the Missouri assessment program. The SMSU researchers could not apply any appropriate statistic to analyze trend or

significance given the disparities in the population. Future studies should simply delineate overall performance on the MAP based on a visual analysis of comparative data over several years.

## REFERENCES

- American Printing House for the Blind. (2000). 132nd annual report. Louisville, KY: Author., Craig, C.J. (1996). Family support of the emergent literacy of children with visual impairments. Journal of Visual Impairment and Blindness, 90 (3), 194-200.
- Gersten, R., Keating, T., Yovanoff, P., & Harniss, M. (2001). Working in Special Education: Factors that Enhance Special Educators' Intent to Stay. Exceptional Children, 67, 549-569.
- Hough, D. (2001). Missouri Teacher Supply and Demand Report 2000-2001. Unpublished manuscript, Southwest Missouri State University.
- Johns, J.L. (1997). Basic Reading Inventory: Preprimer through Grade Twelve & Early Literacy Assessments (7th ed). Dubuque, IA: Kendall/Hunt Publishing Company.
- Holbrook, M.C., and Koenig, A.J. (1992). Teaching Braille to students with low vision. Journal of Visual Impairment and Blindness, 86, 44-48
- Mangold, S. (1982). A teacher's guide to the special educational needs of blind and visually handicapped children. New York: American Foundation for the Blind.
- Missouri School for the Blind. (1998). Census of blind and partially sighted school age children in Missouri. Unpublished report.
- Ryles, R. (1996). The Impact of Braille Reading Skills on Employment, Income, Education and Reading Habits. Journal of Visual Impairment and Blindness, 90, 219.
- Sacks, S. (1998). Educating students who have visual impairments with other disabilities. Baltimore: Paul H. Bookes Pub. Co.
- (M = 2.35) and social skills (M = 2.16); indicating more than an above average of satisfaction.

Email: Special Education

Phone: 573-751-5739 Fax: 573-526-4404

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